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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/934,318	08/21/2001	Venanzio Di Tullio	DSE-2	7989

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EXAMINER

DANG, THUAN D

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/30/2003

LP

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/934,318

Applicant(s)

TULLIO ET AL.

Examiner

Thuan D. Dang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, step (c), it is unclear what - product or something else - amines are.

Claim 4 is non-sense since it is unclear why "hydrolysis and decarboxylation occur at a temperature of about 200-430°C" is recited in the claim. There is no relationship between these reactions with the reaction in claim 1 recited in the claim. Further, it is unclear where these two reactions occur.

The examiner cannot understand what applicants intend to claim in claim 7. It is unclear what the meaning of simultaneously, independently, in concert or in cascade fashion is.

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Regarding claim 11, it is unclear what the "inorganic phase" and "metals-tars-organo-sulfur contaminants" are and from which they come.

Regarding claim 14, "any similar organic matter, which is suitable for use in said catalytic reduction process" is indefinite since it is unclear which matters are and how to know it is suitable.

The examiner cannot understand claim 21.

Regarding claim 23, it is unclear which ones are hydrolyzed into acids, alcohol, and amines.

Claims 23-38 are non-sense since it is unclear the limitations of these claims are required in the process or not. For examples, in claim 23, it is unclear if plastics or protein, which contains amides, are present in the organic material or not. if so, claim 25 does not have any meaning.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-11 and 14-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (5,386,055).

Lee discloses a process of converting organic material such as polyesters into a product containing carbon dioxide and liquid hydrocarbon in the presence of supercritical water and catalyst (the abstract; col. 1, line 44 thru col. 2, line 50; col. 4, lines 40-56).

The condition of the temperature and pressure can be found on column 7, lines 25-35.

Lee does not disclose that the reactor has a pump that can generate a pressure of about 200-250 atmospheres (see the entire patent for details). However, as disclosed on column 7, lines 25-35, the reactor of Lee must be operated under substantially the same pressure as the pump of the claimed reactor can generate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Lee process by using any well-known apparatus such as a pump to regenerate the required pressure since it is expected that using any apparatus, provided that it can generate a pressure required in the Lee reactor, would yields similar results.

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On column 8, lines 14-25, Lee discloses materials present in the reaction system such as organic additives, by-product, and product.

Condenser 34 in figure 1 is not distinguishable from the applicants' claimed cooling means.

Under supercritical condition, water has the characteristics as called for in claims 5 and 31.

The timing of the reaction can be found on column 6, lines 58-65.

The separation of solids from others can be found on column 8, lines 23-25.

Regarding claim 10, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Lee process by selecting an appropriate separation method such as distillation to separate hydrocarbons having different boiling points.

The recycling of unreacted waste after reaction is held to be obvious since the purpose of the Lee process is recycling (the abstract).

Figure 1 shows that the material is preheated by heater 16, which is operated by energy recovered downstream in the process (col. 7, lines 51-53).

The amount of water and material can be found on column 6, lines 52-57.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (5,386,055) in view of Diaz et al (4,478,612).

Lee discloses a process as discussed above.

Lee appears to be silent as to adding glycerol for drying generated hydrocarbons (see the entire patent for details). However, Diaz discloses that glycerol can be used as desiccant (the abstract).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Lee process by using glycerol to dry the Lee product which is rich in moist CO₂ to concentrate the hydrocarbon product since it is expected that a more concentrate feed would enhance the separation of desired distillate. Further, Diaz discloses that his method can be used at the condition of critical point for CO₂ and minimize energy required for compression, desiccant loss, and product contamination (col. 2, lines 13-26).

Claims 13 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (5,386,055) in view of Lin et al (EP 1002767).

Lee discloses a process as discussed above.

Lee does not disclose using lime water to precipitate the produced carbon dioxide (see the entire patent for details). However, Lin discloses that lime can be used to absorb carbon dioxide (the abstract; page 3, lines 54-56).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Lee process by using lime water to remove carbon dioxide gas to maintain the pressure of the reactor since it is expected that the produced carbon dioxide gas will increase the pressure of reactor if it is not removed from the system.

Response to Amendment

The argument that it is clear that, as recited in claim 1, when proteins or other nitrogeneous are present in the input material, then amines are part of the mixture that is a

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product of the chemical transformation is not persuasive since in the claim, applicants do not clearly claim that amines are a product of the proteins or nitrogenous compounds (see claim 1). For examples, step (c) can be interpreted as the transformation of organic material to liquid hydrocarbon and carbon dioxide if the condition is met "protein or other nitrogenous compounds are present in said organic material, amines".

The argument that regarding claim 4, the specification clearly describes the relationship between the hydrolysis of proteins to produce a mixture of amino acids, of triglycerides and lipids to produce carboxylic acids, plus glycerol, and the decarboxylation of the amino acids and the carboxylic acid generate carbon dioxide . . . is not persuasive since applicants do not recite reactants so that these reactions can occur (see claims).

The argument that the terms "simultaneously, independently, in concert or in cascade fashion" are common terms which can be understood is not persuasive since as recited in the claim applicants do not recite to **which** the reaction can be considered to be independent, simultaneous, in concert or cascade. For examples, is the reaction independent with the temperature, pressure, human control, or something else? Applicants should know that these terms look like relative terms. Therefore, if applicants do not recite something on which the reaction is based to be considered to be independent, simultaneous, in concert or cascade, the claim cannot be interpreted.

The argument that the terms "inorganic phase" and "metals-tars-organosulfur contaminants" are well-known is not persuasive since the rejection is not a question of the meaning of these terms, but from which they come.

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The argument that one having ordinary skill in the art would understand the types of organic materials are suitable, particularly based on the range of input materials described in examples is not persuasive since the languages in the claim also include unspecified materials which are not used in examples. If so, what are they?

The argument that the language of claim 21 is clear on its face is not persuasive since the examiner cannot understand the claim. Further, applicants do not recite the feed include the compounds such as ester so that the reduction of the viscosity is possible. If so, a conversion of ester in the nature not in the claimed reactor would reduce the viscosity of the feed?

The argument claim 23 is clear on its face is not persuasive since it is unclear the limitations of these claims are required in the process or not. For examples, in claim 23, it is unclear if plastics or protein which contains amides are present in the organic material or not. if so, claim does 25 have any meaning.

The argument that while applicants' claimed process is a catalytic reduction of raw organic materials, Lee is an oxidation of synthesis polymers which is not raw organic materials is not persuasive since applicants do not claim which contain in the raw organic materials, applicants do not claim a step of catalytic reduction (even, a catalyst is not recited). Note that a claimed process is limited by positive steps, not preamble.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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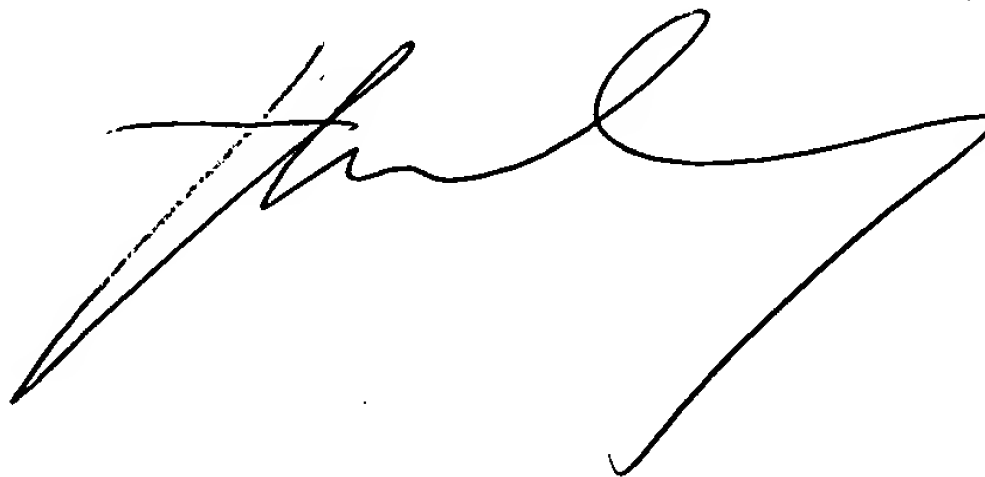
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 703-305-2658. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Thuan D. Dang
Primary Examiner
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A handwritten signature in black ink, appearing to be 'Thuan D. Dang', written in a cursive style.

92934318.2nd
June 30, 2003